Jsroot: 2e24b80

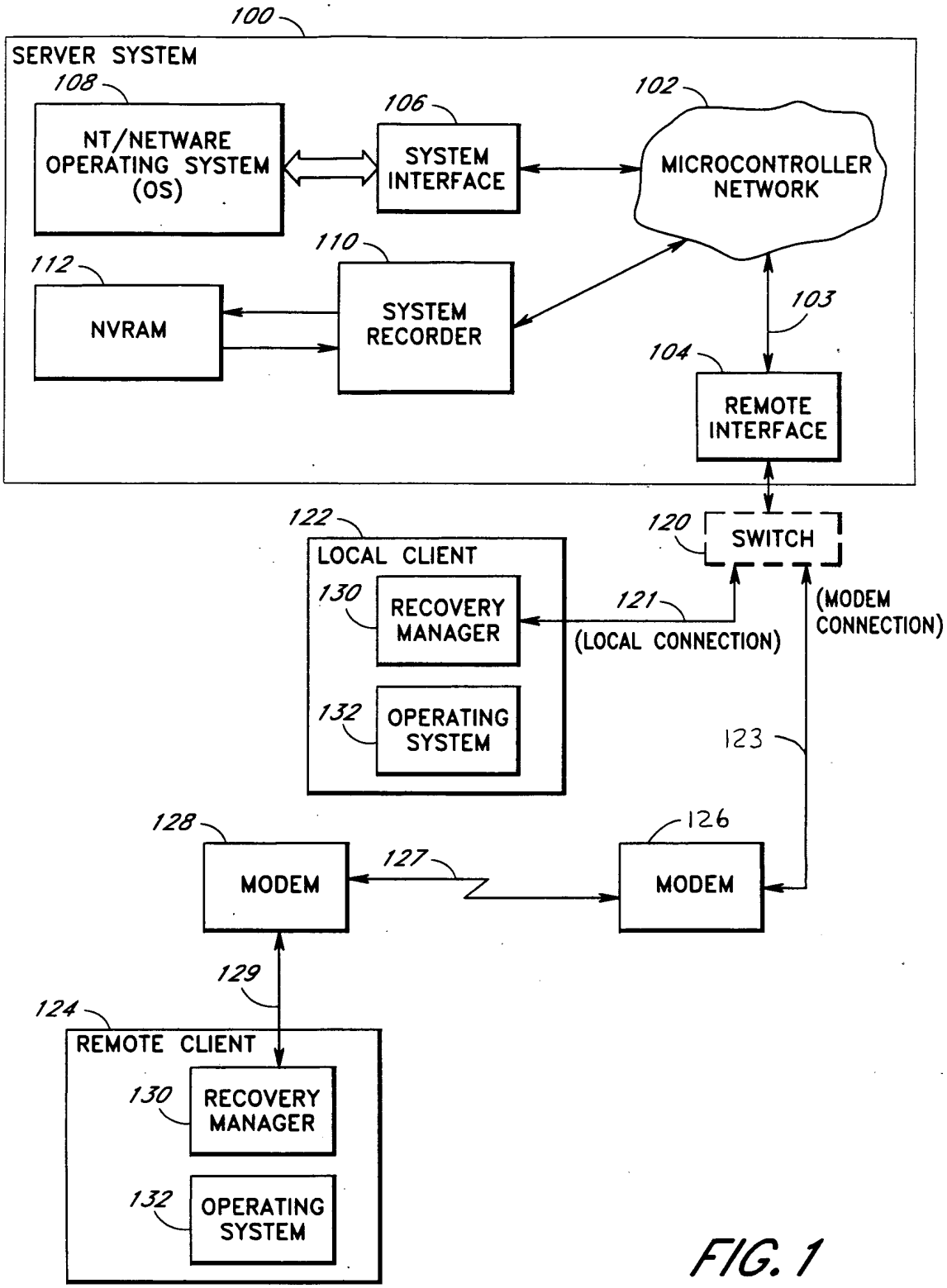

FIG. 1

Z6TOOT*EEE2h680

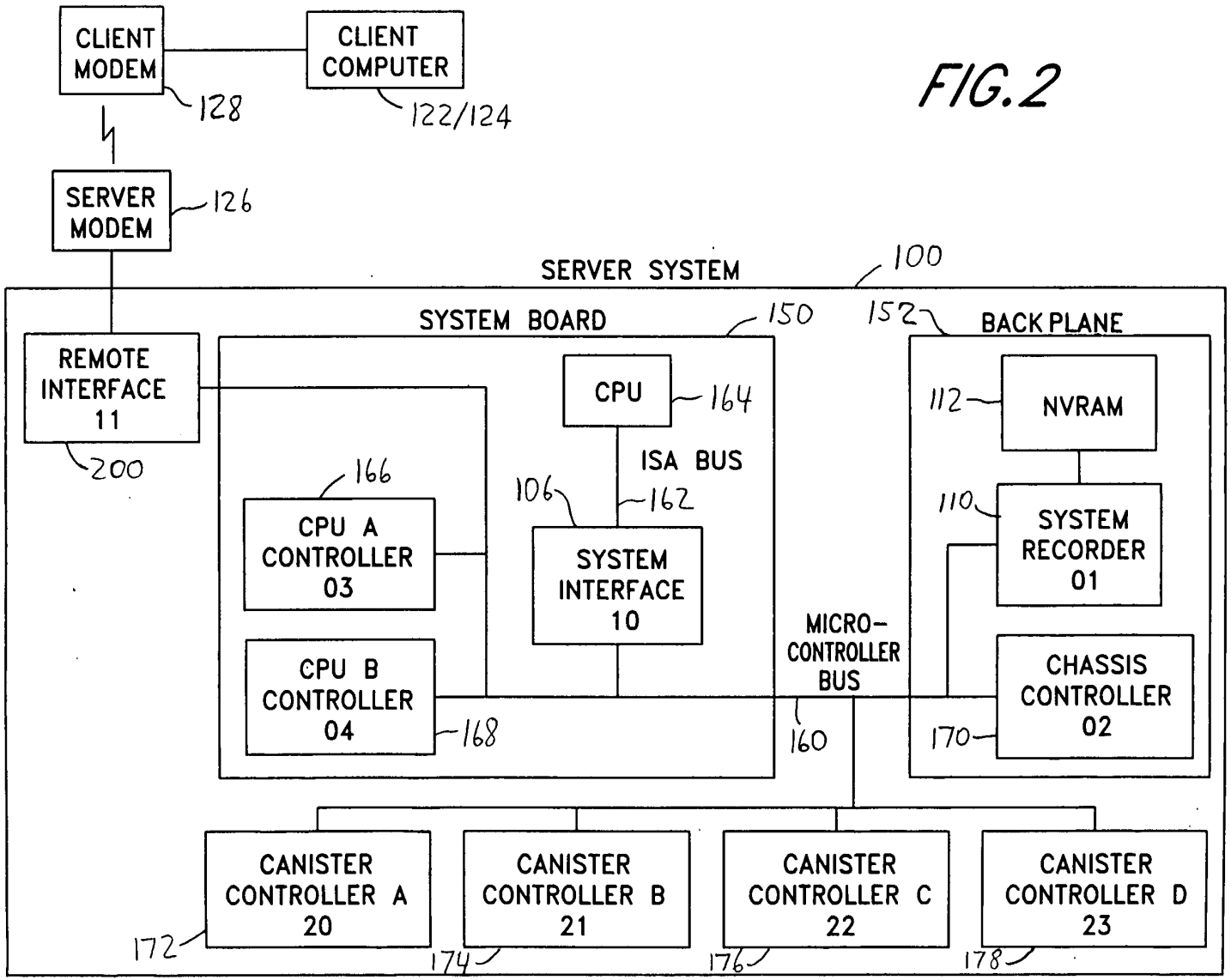

FIG. 2

Remote Interface Serial Protocol Message Formats

201

Request:

202

SOM	Seq. #	TYPE	Data	...	Check	EOM

206 208 210 212 214 216

Response:

204

SOM	Seq. #	STATUS	Data	...	Check	EOM

218

Event Interrupt

INT

220

Sheet 3 of 8

FIG. 3

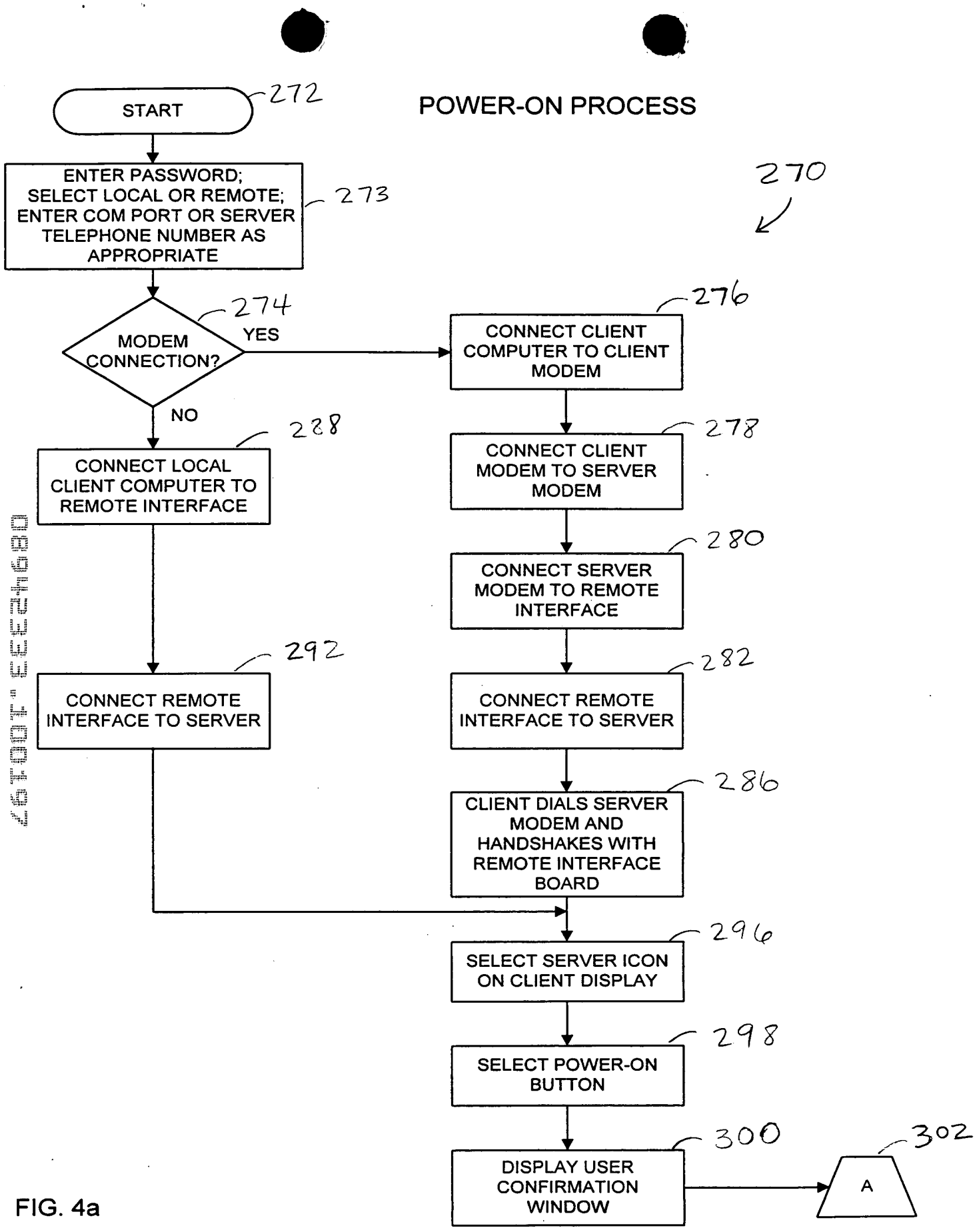
POWER-ON PROCESS
270
START
272
ENTER PASSWORD; SELECT LOCAL OR REMOTE; ENTER COM PORT OR SERVER TELEPHONE NUMBER AS APPROPRIATE
273
MODEM CONNECTION?
274
YES
NO
CONNECT CLIENT COMPUTER TO CLIENT MODEM
276
CONNECT CLIENT MODEM TO SERVER MODEM
278
CONNECT SERVER MODEM TO REMOTE INTERFACE
280
CONNECT REMOTE INTERFACE TO SERVER
282
CONNECT LOCAL CLIENT COMPUTER TO REMOTE INTERFACE
288
CONNECT REMOTE INTERFACE TO SERVER
292
CLIENT DIALS SERVER MODEM AND HANDSHAKES WITH REMOTE INTERFACE BOARD
286
SELECT SERVER ICON ON CLIENT DISPLAY
296
SELECT POWER-ON BUTTON
298
DISPLAY USER CONFIRMATION WINDOW
300
A
302
20100713134548.0

FIG. 4a

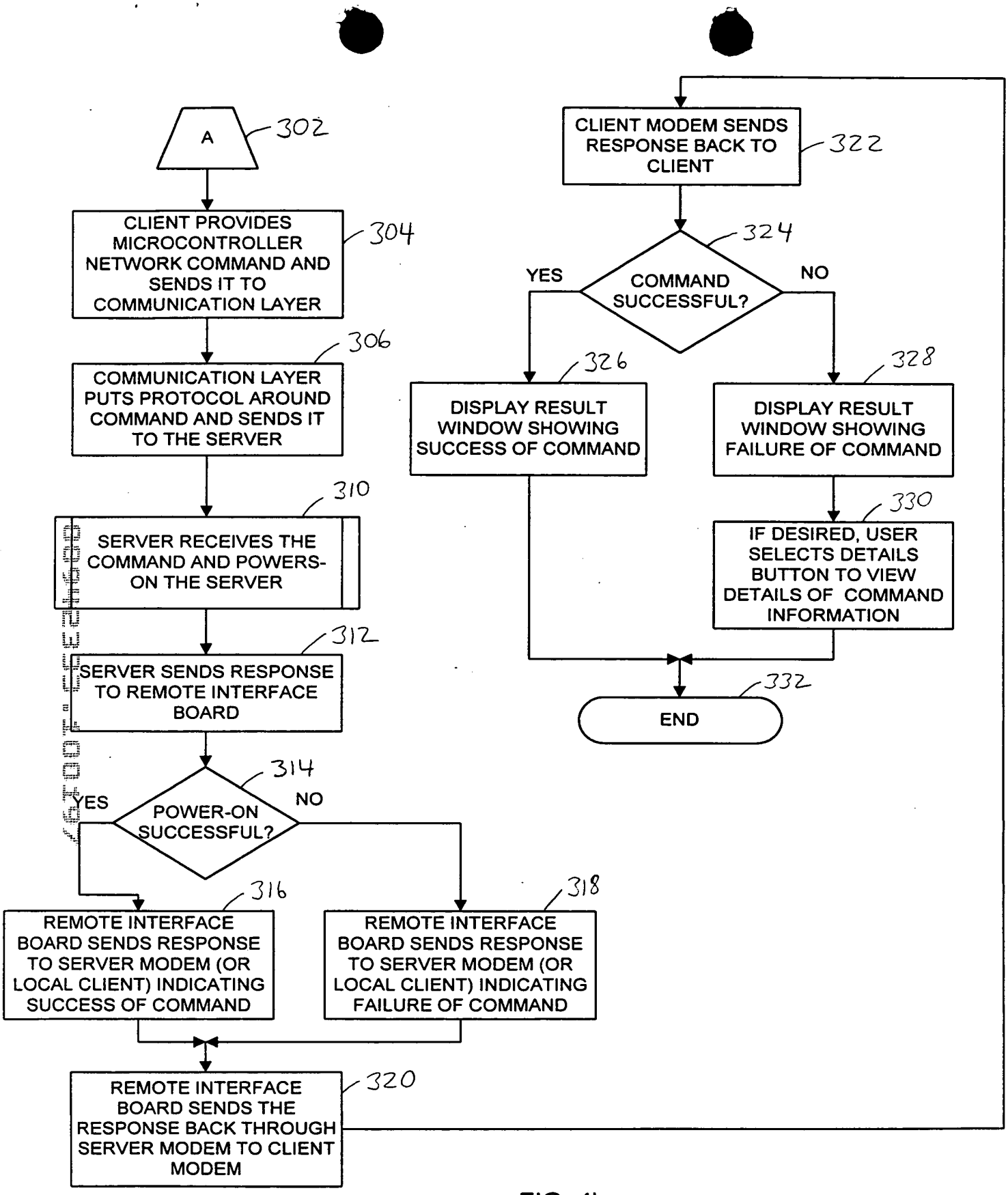
A
302
CLIENT PROVIDES MICROCONTROLLER NETWORK COMMAND AND SENDS IT TO COMMUNICATION LAYER
304
COMMUNICATION LAYER PUTS PROTOCOL AROUND COMMAND AND SENDS IT TO THE SERVER
306
SERVER RECEIVES THE COMMAND AND POWERS-ON THE SERVER
310
SERVER SENDS RESPONSE TO REMOTE INTERFACE BOARD
312
POWER-ON SUCCESSFUL?
314
YES
NO
REMOTE INTERFACE BOARD SENDS RESPONSE TO SERVER MODEM (OR LOCAL CLIENT) INDICATING SUCCESS OF COMMAND
316
REMOTE INTERFACE BOARD SENDS RESPONSE TO SERVER MODEM (OR LOCAL CLIENT) INDICATING FAILURE OF COMMAND
318
REMOTE INTERFACE BOARD SENDS THE RESPONSE BACK THROUGH SERVER MODEM TO CLIENT MODEM
320
CLIENT MODEM SENDS RESPONSE BACK TO CLIENT
322
COMMAND SUCCESSFUL?
324
YES
NO
DISPLAY RESULT WINDOW SHOWING SUCCESS OF COMMAND
326
DISPLAY RESULT WINDOW SHOWING FAILURE OF COMMAND
328
IF DESIRED, USER SELECTS DETAILS BUTTON TO VIEW DETAILS OF COMMAND INFORMATION
330
END
332

FIG. 4b

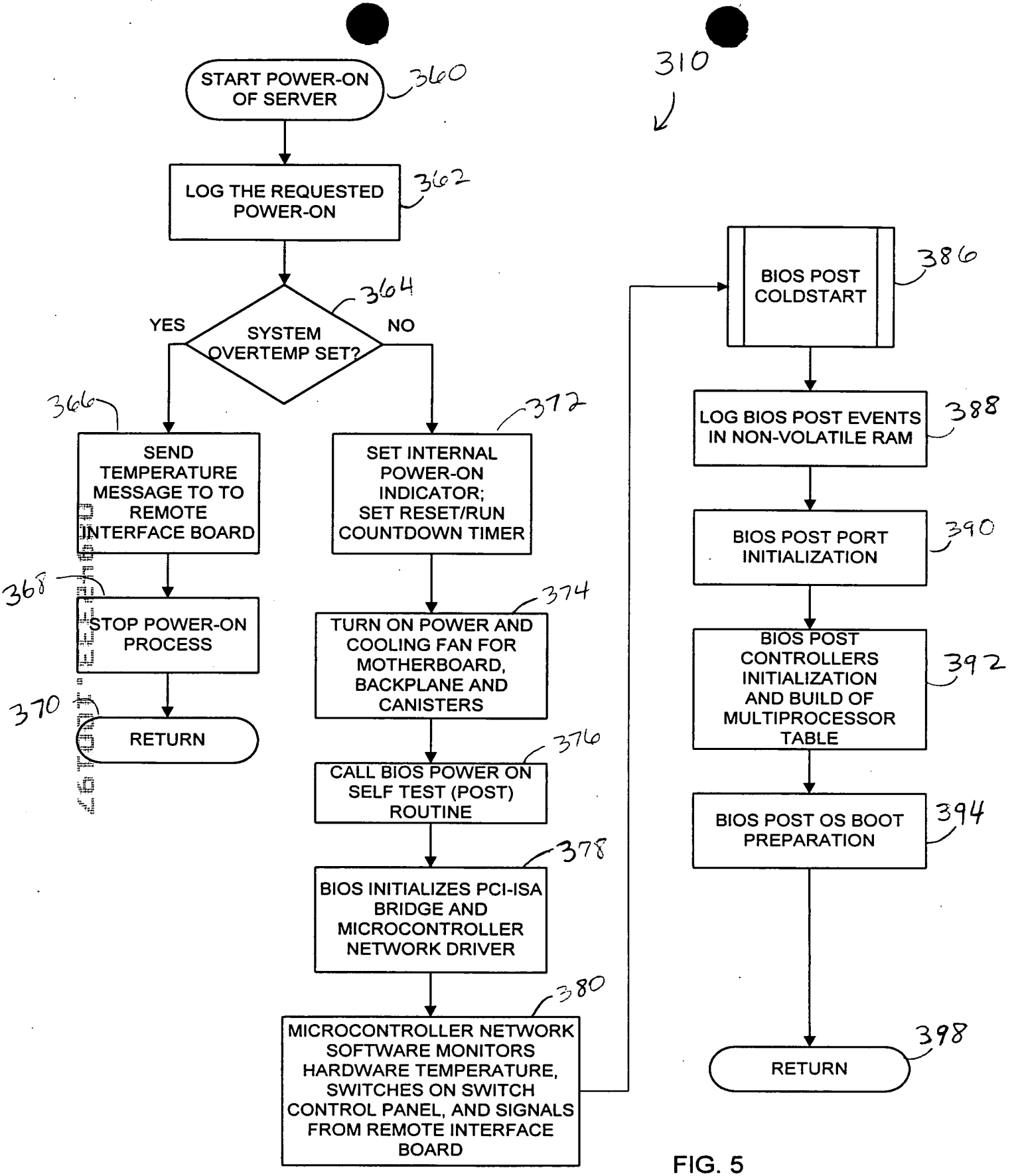
310
START POWER-ON OF SERVER
360
LOG THE REQUESTED POWER-ON
362
SYSTEM OVERTEMP SET?
364
YES
NO
366
SEND TEMPERATURE MESSAGE TO TO REMOTE INTERFACE BOARD
368
STOP POWER-ON PROCESS
370
RETURN
372
SET INTERNAL POWER-ON INDICATOR; SET RESET/RUN COUNTDOWN TIMER
374
TURN ON POWER AND COOLING FAN FOR MOTHERBOARD, BACKPLANE AND CANISTERS
376
CALL BIOS POWER ON SELF TEST (POST) ROUTINE
378
BIOS INITIALIZES PCI-ISA BRIDGE AND MICROCONTROLLER NETWORK DRIVER
380
MICROCONTROLLER NETWORK SOFTWARE MONITORS HARDWARE TEMPERATURE, SWITCHES ON SWITCH CONTROL PANEL, AND SIGNALS FROM REMOTE INTERFACE BOARD
386
BIOS POST COLDSTART
388
LOG BIOS POST EVENTS IN NON-VOLATILE RAM
390
BIOS POST PORT INITIALIZATION
392
BIOS POST CONTROLLERS INITIALIZATION AND BUILD OF MULTIPROCESSOR TABLE
394
BIOS POST OS BOOT PREPARATION
398
RETURN

FIG. 5

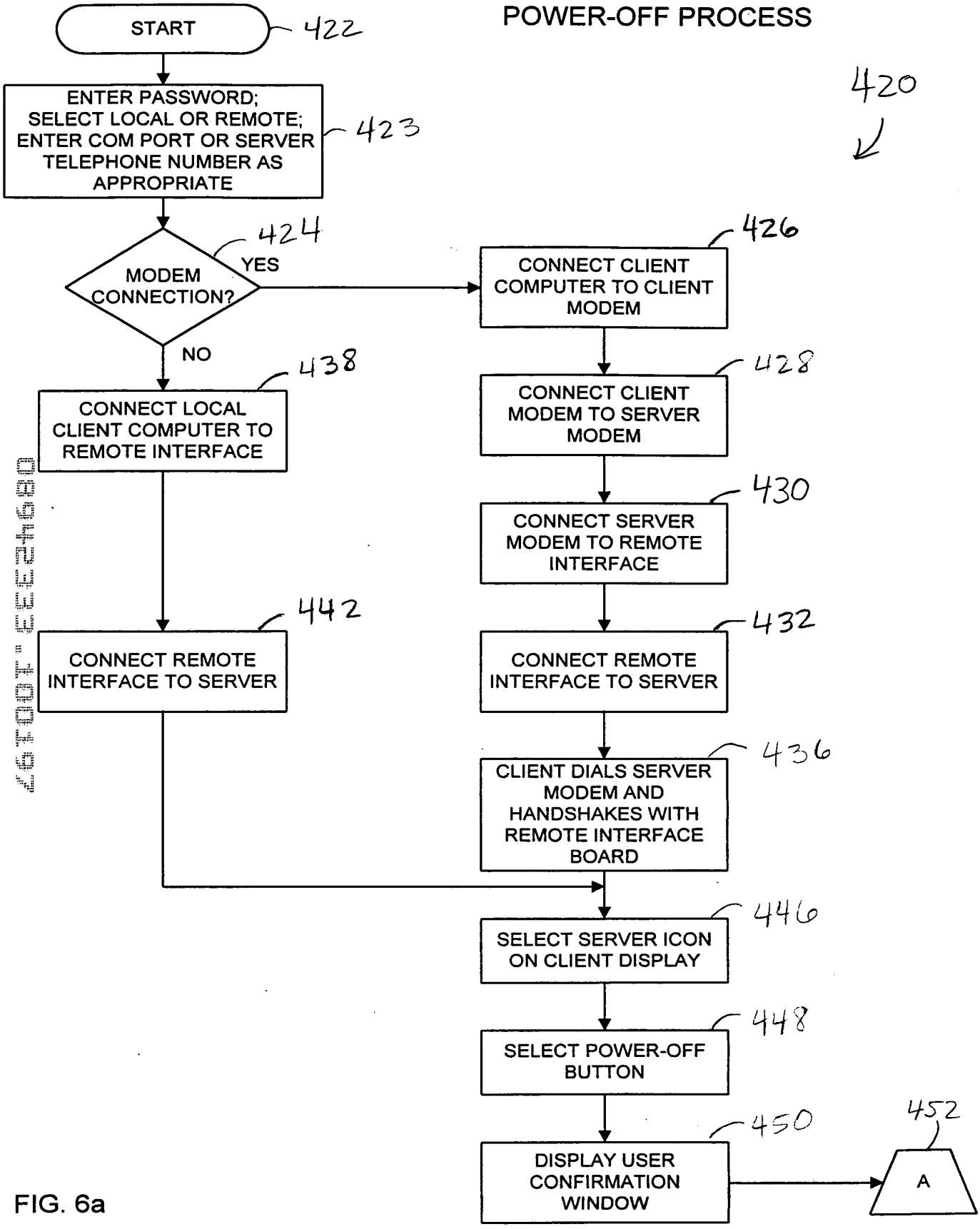
POWER-OFF PROCESS
420
START
422
ENTER PASSWORD; SELECT LOCAL OR REMOTE; ENTER COM PORT OR SERVER TELEPHONE NUMBER AS APPROPRIATE
423
MODEM CONNECTION?
424
YES
NO
CONNECT CLIENT COMPUTER TO CLIENT MODEM
426
CONNECT CLIENT MODEM TO SERVER MODEM
428
CONNECT SERVER MODEM TO REMOTE INTERFACE
430
CONNECT REMOTE INTERFACE TO SERVER
432
CLIENT DIALS SERVER MODEM AND HANDSHAKES WITH REMOTE INTERFACE BOARD
436
CONNECT LOCAL CLIENT COMPUTER TO REMOTE INTERFACE
438
CONNECT REMOTE INTERFACE TO SERVER
442
SELECT SERVER ICON ON CLIENT DISPLAY
446
SELECT POWER-OFF BUTTON
448
DISPLAY USER CONFIRMATION WINDOW
450
A
452

FIG. 6a

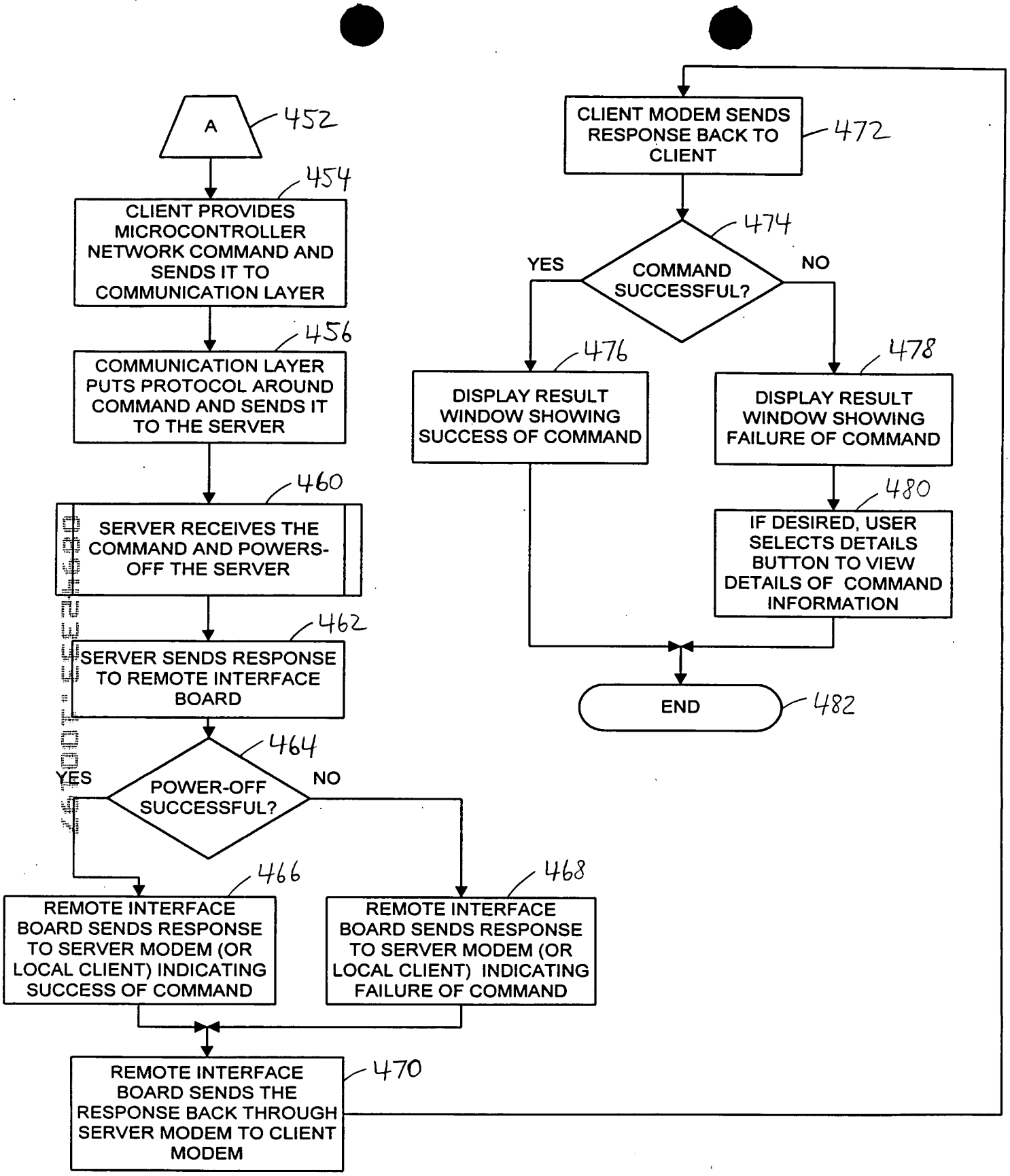
A
452
CLIENT PROVIDES MICROCONTROLLER NETWORK COMMAND AND SENDS IT TO COMMUNICATION LAYER
454
COMMUNICATION LAYER PUTS PROTOCOL AROUND COMMAND AND SENDS IT TO THE SERVER
456
SERVER RECEIVES THE COMMAND AND POWERS-OFF THE SERVER
460
SERVER SENDS RESPONSE TO REMOTE INTERFACE BOARD
462
POWER-OFF SUCCESSFUL?
464
YES
NO
REMOTE INTERFACE BOARD SENDS RESPONSE TO SERVER MODEM (OR LOCAL CLIENT) INDICATING SUCCESS OF COMMAND
466
REMOTE INTERFACE BOARD SENDS RESPONSE TO SERVER MODEM (OR LOCAL CLIENT) INDICATING FAILURE OF COMMAND
468
REMOTE INTERFACE BOARD SENDS THE RESPONSE BACK THROUGH SERVER MODEM TO CLIENT MODEM
470
CLIENT MODEM SENDS RESPONSE BACK TO CLIENT
472
COMMAND SUCCESSFUL?
474
YES
NO
DISPLAY RESULT WINDOW SHOWING SUCCESS OF COMMAND
476
DISPLAY RESULT WINDOW SHOWING FAILURE OF COMMAND
478
IF DESIRED, USER SELECTS DETAILS BUTTON TO VIEW DETAILS OF COMMAND INFORMATION
480
END
482

FIG. 6b

Attorney Docket: 200407-3

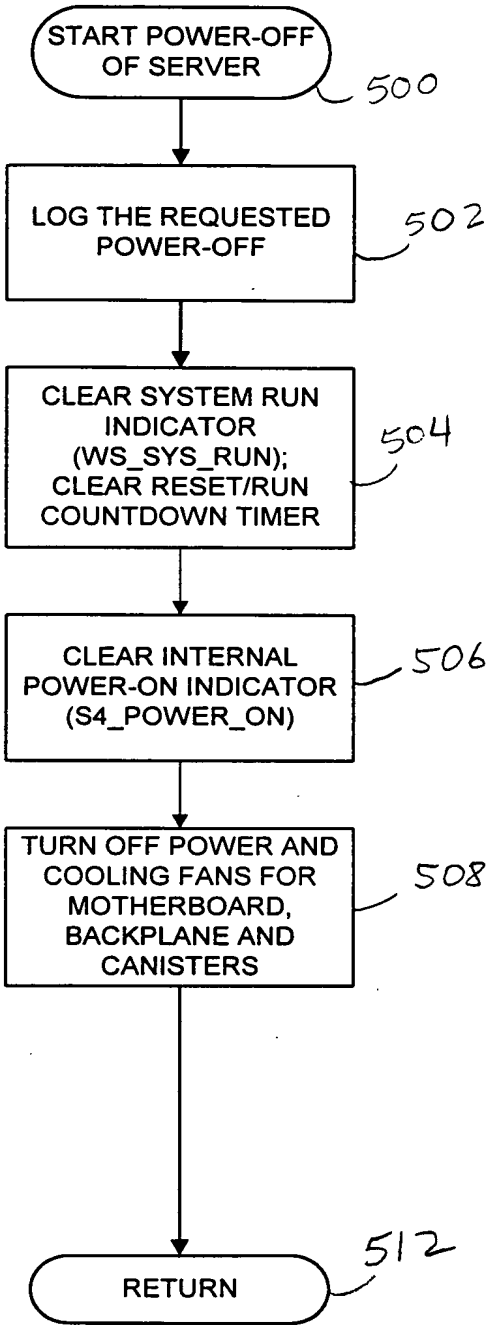

FIG. 7

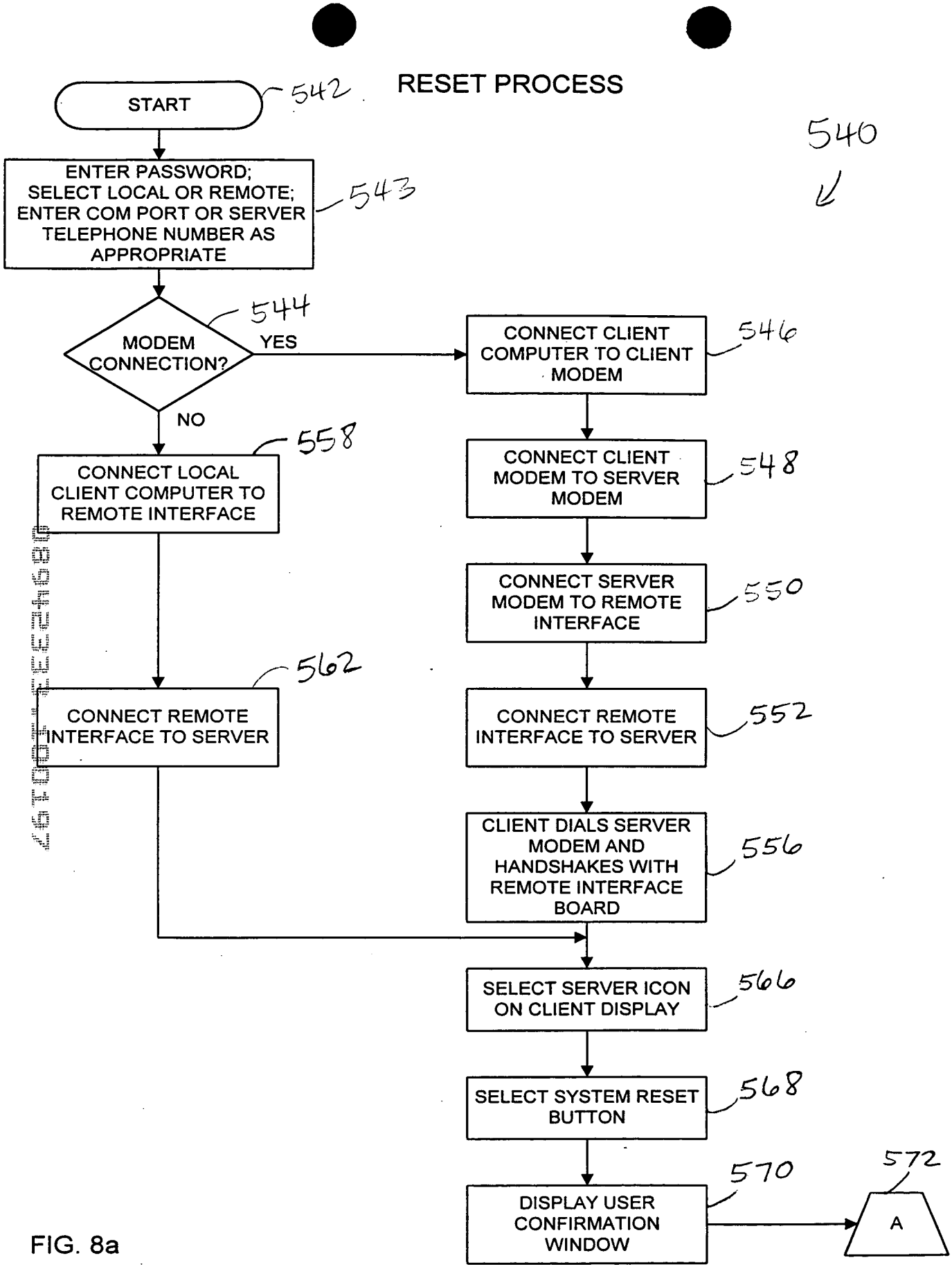
RESET PROCESS
540
START
542
ENTER PASSWORD; SELECT LOCAL OR REMOTE; ENTER COM PORT OR SERVER TELEPHONE NUMBER AS APPROPRIATE
543
MODEM CONNECTION?
544
YES
NO
CONNECT CLIENT COMPUTER TO CLIENT MODEM
546
CONNECT CLIENT MODEM TO SERVER MODEM
548
CONNECT SERVER MODEM TO REMOTE INTERFACE
550
CONNECT REMOTE INTERFACE TO SERVER
552
CONNECT LOCAL CLIENT COMPUTER TO REMOTE INTERFACE
558
CONNECT REMOTE INTERFACE TO SERVER
562
CLIENT DIALS SERVER MODEM AND HANDSHAKES WITH REMOTE INTERFACE BOARD
556
SELECT SERVER ICON ON CLIENT DISPLAY
566
SELECT SYSTEM RESET BUTTON
568
DISPLAY USER CONFIRMATION WINDOW
570
A
572

FIG. 8a

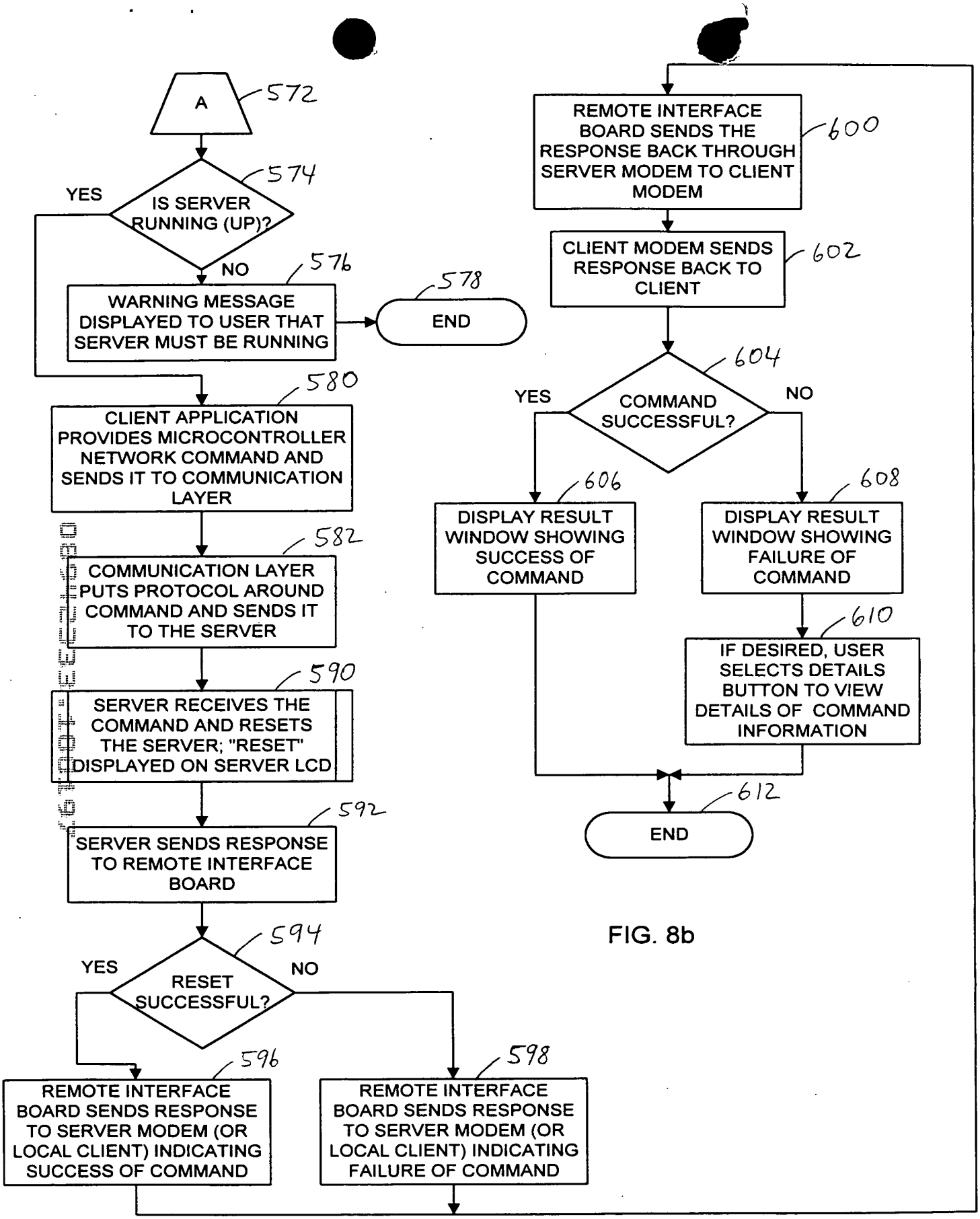
A
572
IS SERVER RUNNING (UP)?
574
YES
NO
WARNING MESSAGE DISPLAYED TO USER THAT SERVER MUST BE RUNNING
576
END
578
CLIENT APPLICATION PROVIDES MICROCONTROLLER NETWORK COMMAND AND SENDS IT TO COMMUNICATION LAYER
580
COMMUNICATION LAYER PUTS PROTOCOL AROUND COMMAND AND SENDS IT TO THE SERVER
582
SERVER RECEIVES THE COMMAND AND RESETS THE SERVER; "RESET" DISPLAYED ON SERVER LCD
590
SERVER SENDS RESPONSE TO REMOTE INTERFACE BOARD
592
RESET SUCCESSFUL?
594
YES
NO
REMOTE INTERFACE BOARD SENDS RESPONSE TO SERVER MODEM (OR LOCAL CLIENT) INDICATING SUCCESS OF COMMAND
596
REMOTE INTERFACE BOARD SENDS RESPONSE TO SERVER MODEM (OR LOCAL CLIENT) INDICATING FAILURE OF COMMAND
598
REMOTE INTERFACE BOARD SENDS THE RESPONSE BACK THROUGH SERVER MODEM TO CLIENT MODEM
600
CLIENT MODEM SENDS RESPONSE BACK TO CLIENT
602
COMMAND SUCCESSFUL?
604
YES
NO
DISPLAY RESULT WINDOW SHOWING SUCCESS OF COMMAND
606
DISPLAY RESULT WINDOW SHOWING FAILURE OF COMMAND
608
IF DESIRED, USER SELECTS DETAILS BUTTON TO VIEW DETAILS OF COMMAND INFORMATION
610
END
612

FIG. 8b

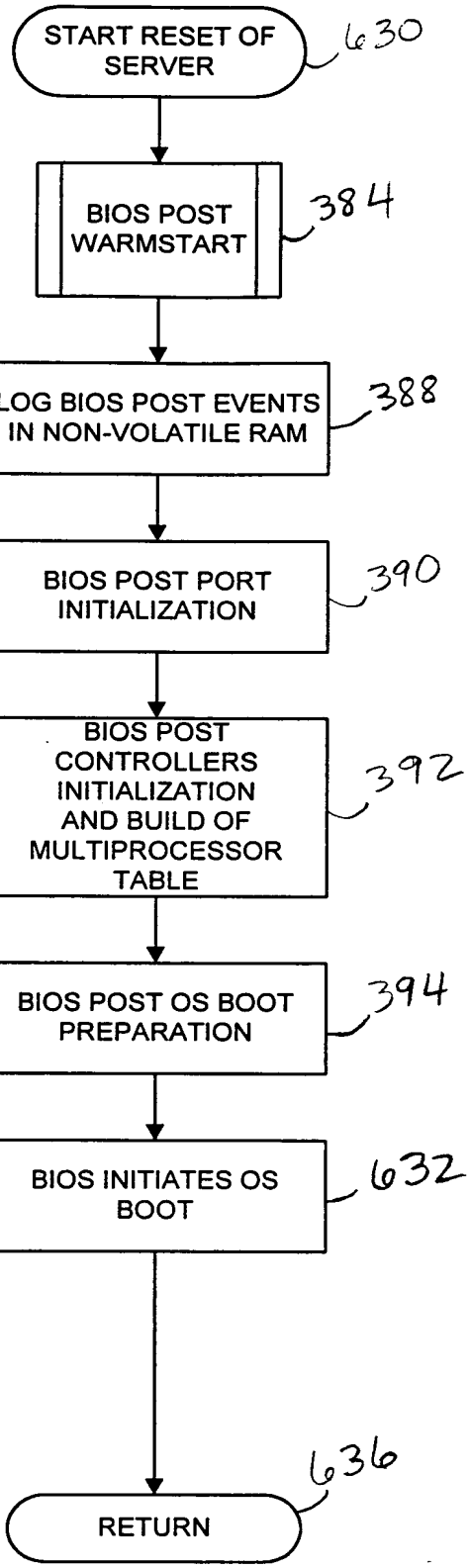

FIG. 9

Serial No. 09/473,683 - Docket 10559-1680

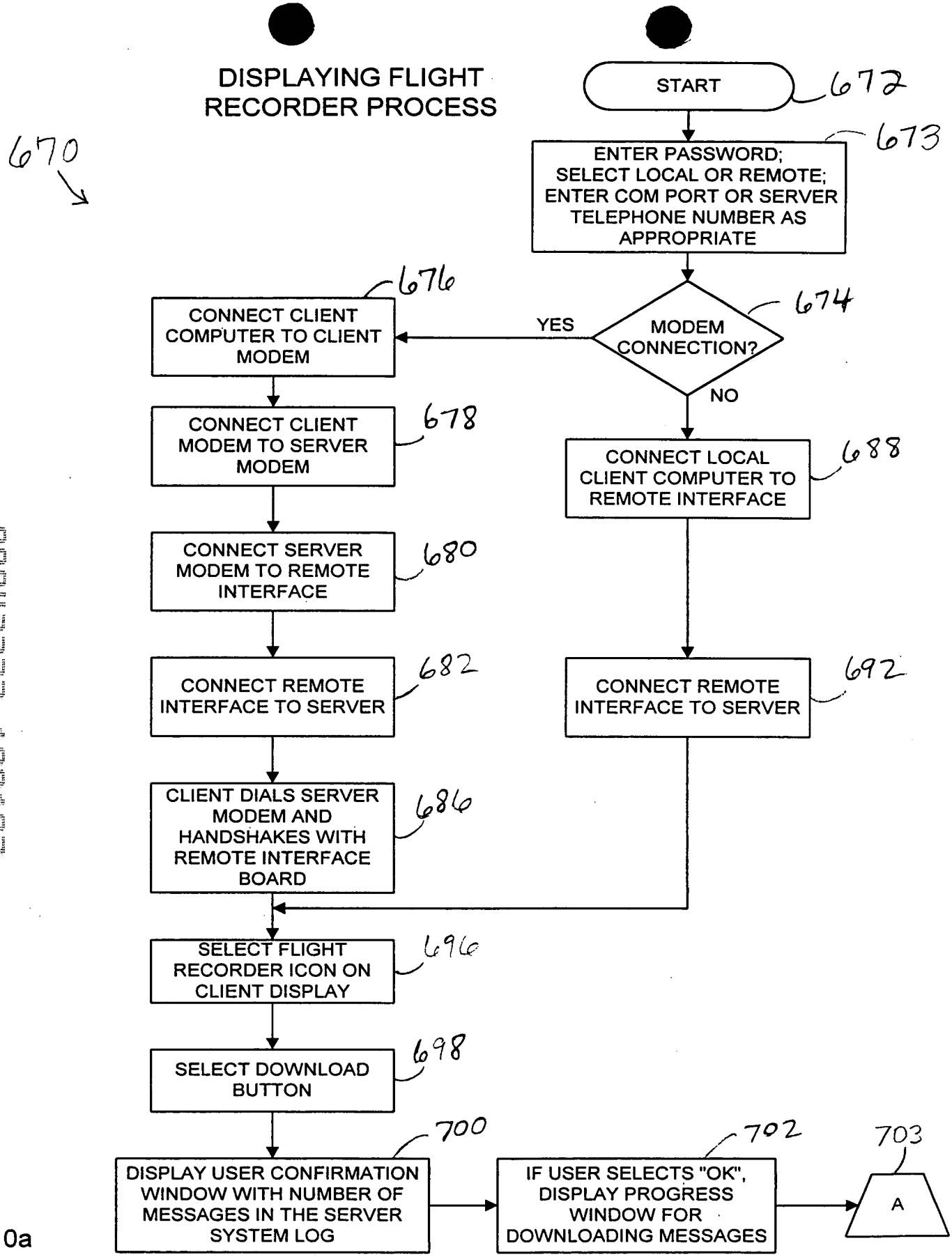

FIG. 10a

Patent Application Publication Oct. 23, 2003 Sheet 9 of 13 US 2003/0200294 A1

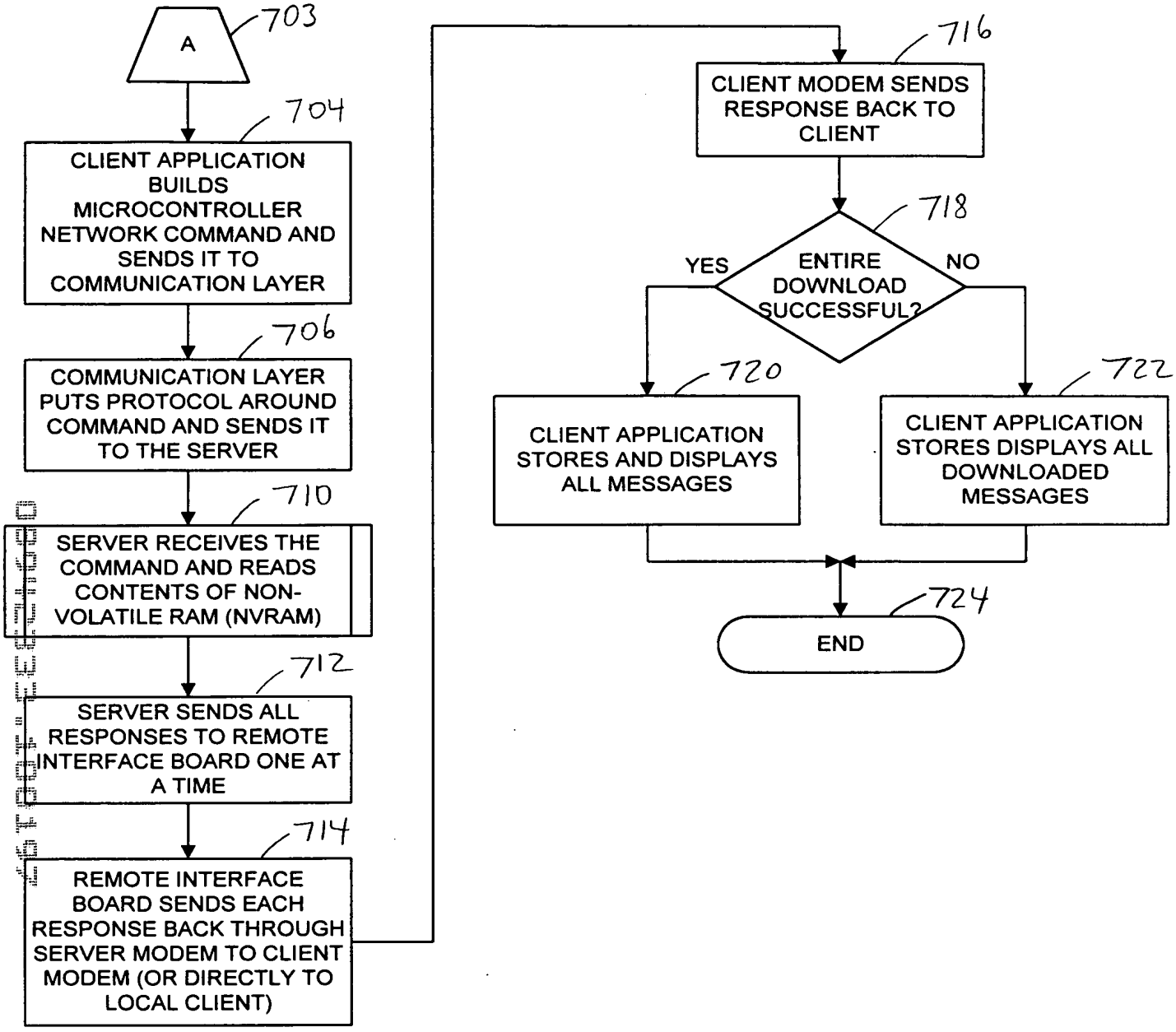
A
703
704
CLIENT APPLICATION BUILDS MICROCONTROLLER NETWORK COMMAND AND SENDS IT TO COMMUNICATION LAYER
706
COMMUNICATION LAYER PUTS PROTOCOL AROUND COMMAND AND SENDS IT TO THE SERVER
710
SERVER RECEIVES THE COMMAND AND READS CONTENTS OF NON-VOLATILE RAM (NVRAM)
712
SERVER SENDS ALL RESPONSES TO REMOTE INTERFACE BOARD ONE AT A TIME
714
REMOTE INTERFACE BOARD SENDS EACH RESPONSE BACK THROUGH SERVER MODEM TO CLIENT MODEM (OR DIRECTLY TO LOCAL CLIENT)
716
CLIENT MODEM SENDS RESPONSE BACK TO CLIENT
718
ENTIRE DOWNLOAD SUCCESSFUL?
YES
NO
720
CLIENT APPLICATION STORES AND DISPLAYS ALL MESSAGES
722
CLIENT APPLICATION STORES DISPLAYS ALL DOWNLOADED MESSAGES
724
END

FIG. 10b

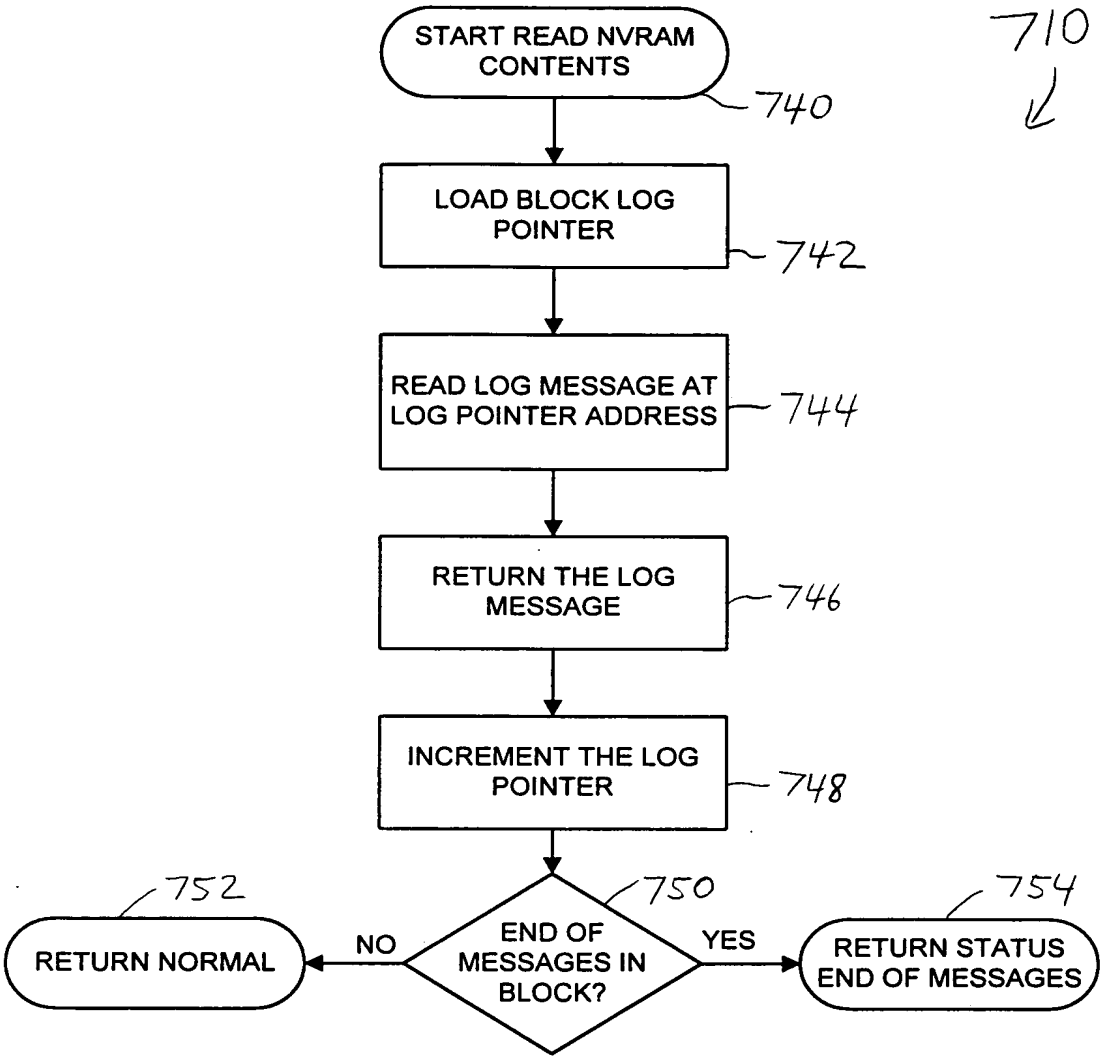
710
START READ NVRAM CONTENTS
740
LOAD BLOCK LOG POINTER
742
READ LOG MESSAGE AT LOG POINTER ADDRESS
744
RETURN THE LOG MESSAGE
746
INCREMENT THE LOG POINTER
748
END OF MESSAGES IN BLOCK?
750
NO
YES
RETURN NORMAL
752
RETURN STATUS END OF MESSAGES
754

FIG. 11

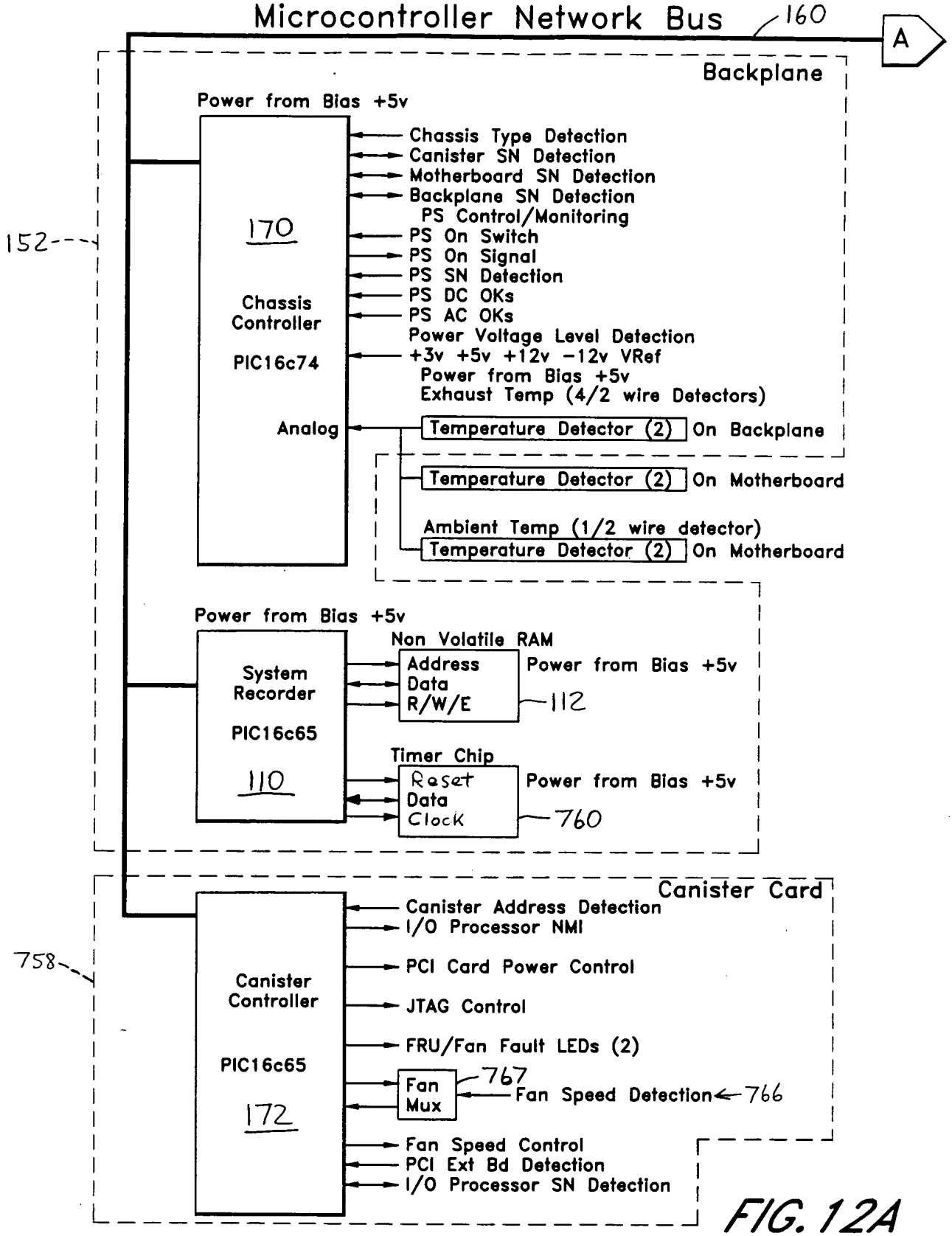

FIG. 12A

Sheet 13 of 15 - 6,256,754

Sheet 13 of 13 US 6,654,830

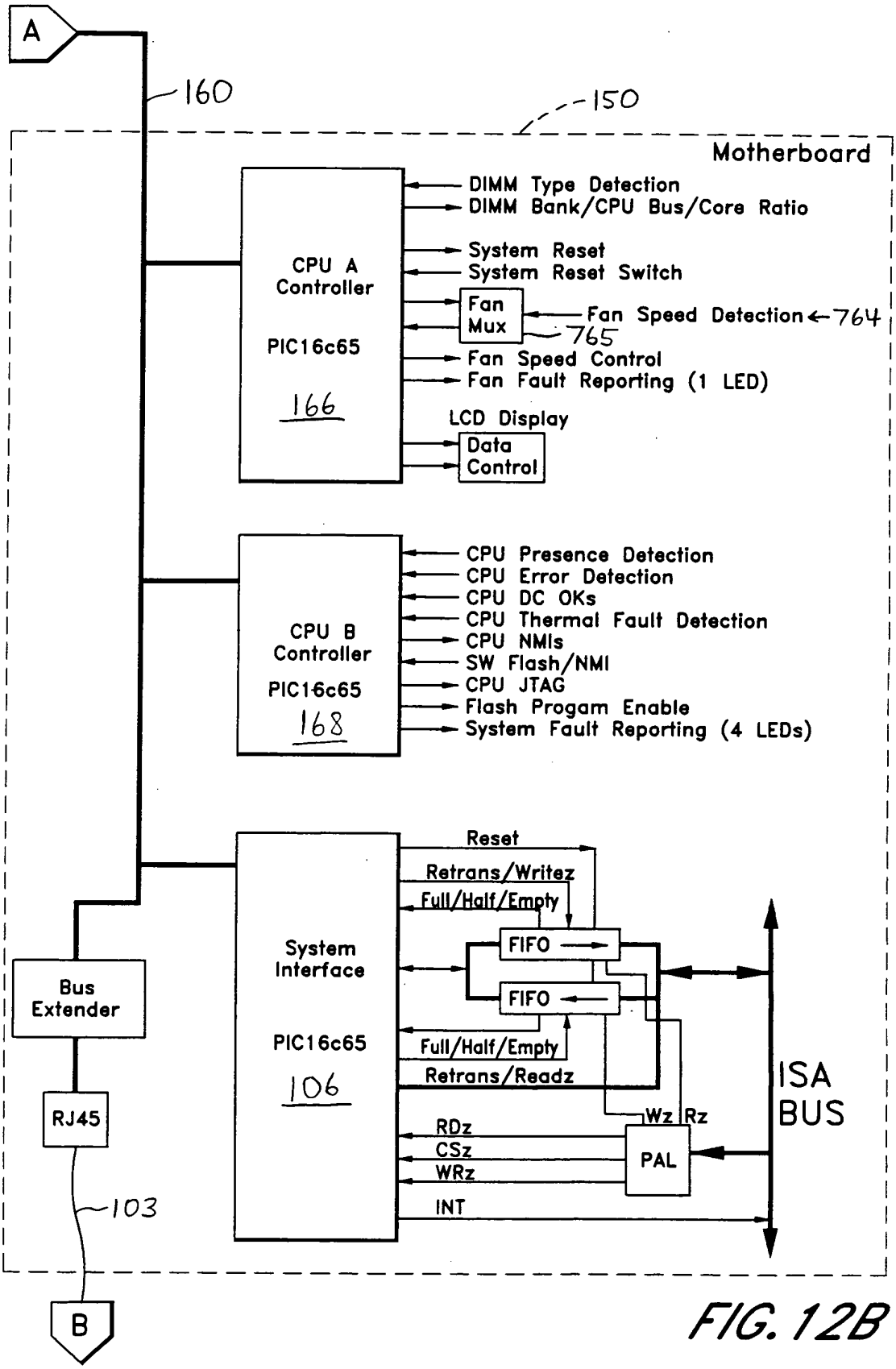

FIG. 12B

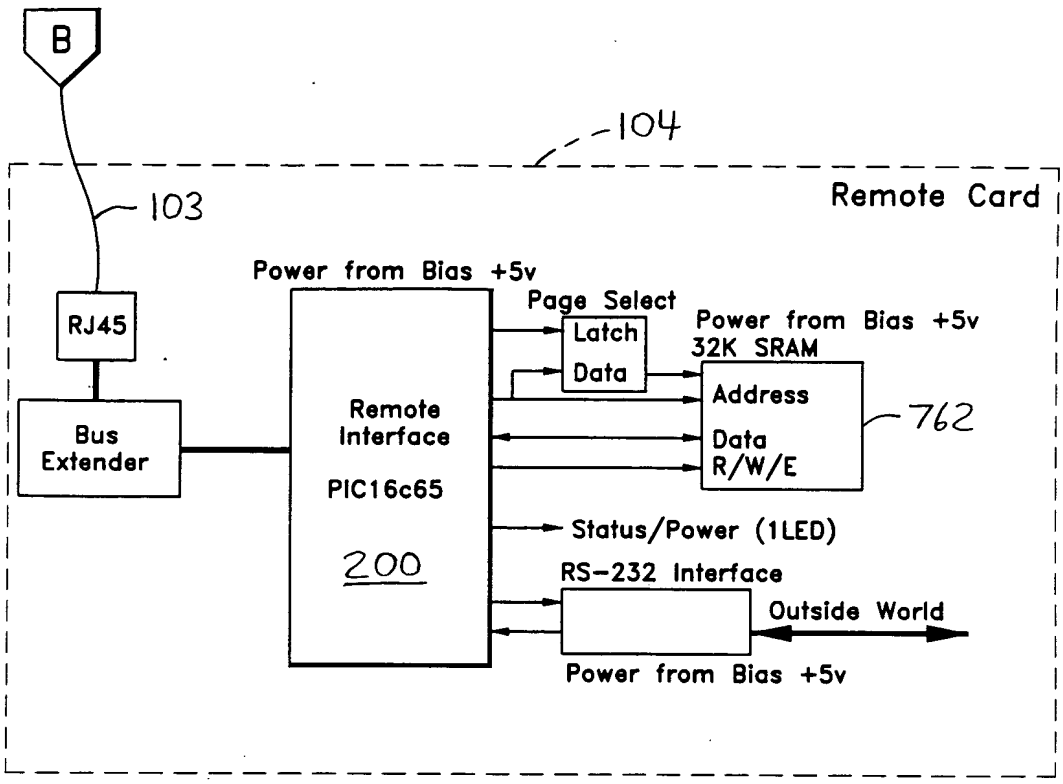

FIG. 12C

5,768,345

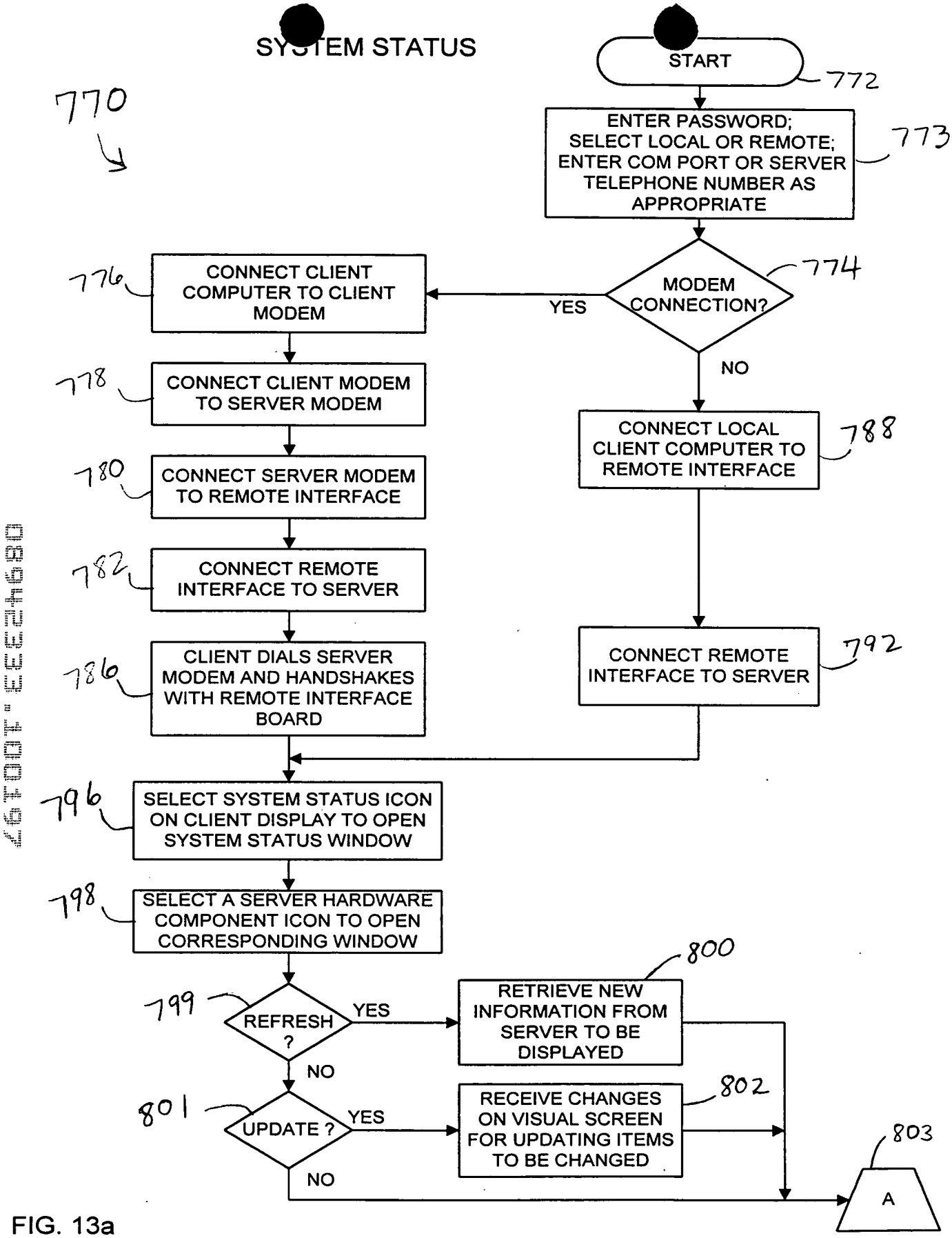
SYSTEM STATUS
770
START
772
ENTER PASSWORD; SELECT LOCAL OR REMOTE; ENTER COM PORT OR SERVER TELEPHONE NUMBER AS APPROPRIATE
773
MODEM CONNECTION?
774
YES
NO
CONNECT CLIENT COMPUTER TO CLIENT MODEM
776
CONNECT CLIENT MODEM TO SERVER MODEM
778
CONNECT SERVER MODEM TO REMOTE INTERFACE
780
CONNECT REMOTE INTERFACE TO SERVER
782
CLIENT DIALS SERVER MODEM AND HANDSHAKES WITH REMOTE INTERFACE BOARD
786
CONNECT LOCAL CLIENT COMPUTER TO REMOTE INTERFACE
788
CONNECT REMOTE INTERFACE TO SERVER
792
SELECT SYSTEM STATUS ICON ON CLIENT DISPLAY TO OPEN SYSTEM STATUS WINDOW
796
SELECT A SERVER HARDWARE COMPONENT ICON TO OPEN CORRESPONDING WINDOW
798
REFRESH ?
799
YES
NO
RETRIEVE NEW INFORMATION FROM SERVER TO BE DISPLAYED
800
UPDATE ?
801
YES
NO
RECEIVE CHANGES ON VISUAL SCREEN FOR UPDATING ITEMS TO BE CHANGED
802
A
803
4,805,134,968,A
4,805,134,968,A

FIG. 13a

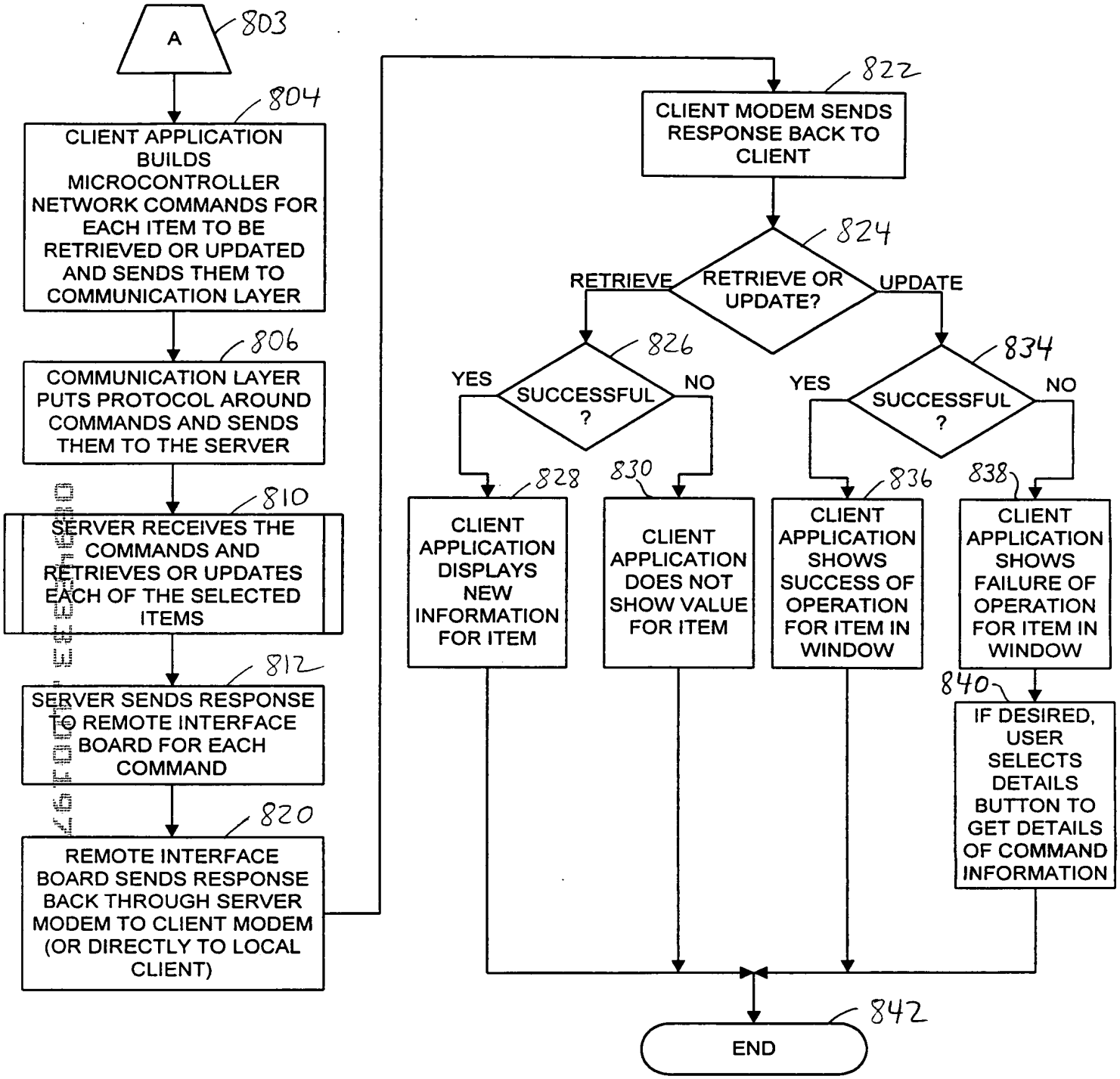
A
803
804
CLIENT APPLICATION BUILDS MICROCONTROLLER NETWORK COMMANDS FOR EACH ITEM TO BE RETRIEVED OR UPDATED AND SENDS THEM TO COMMUNICATION LAYER
806
COMMUNICATION LAYER PUTS PROTOCOL AROUND COMMANDS AND SENDS THEM TO THE SERVER
810
SERVER RECEIVES THE COMMANDS AND RETRIEVES OR UPDATES EACH OF THE SELECTED ITEMS
812
SERVER SENDS RESPONSE TO REMOTE INTERFACE BOARD FOR EACH COMMAND
820
REMOTE INTERFACE BOARD SENDS RESPONSE BACK THROUGH SERVER MODEM TO CLIENT MODEM (OR DIRECTLY TO LOCAL CLIENT)
822
CLIENT MODEM SENDS RESPONSE BACK TO CLIENT
824
RETRIEVE OR UPDATE?
RETRIEVE
UPDATE
826
YES
SUCCESSFUL ?
NO
828
CLIENT APPLICATION DISPLAYS NEW INFORMATION FOR ITEM
830
CLIENT APPLICATION DOES NOT SHOW VALUE FOR ITEM
834
YES
SUCCESSFUL ?
NO
836
CLIENT APPLICATION SHOWS SUCCESS OF OPERATION FOR ITEM IN WINDOW
838
CLIENT APPLICATION SHOWS FAILURE OF OPERATION FOR ITEM IN WINDOW
840
IF DESIRED, USER SELECTS DETAILS BUTTON TO GET DETAILS OF COMMAND INFORMATION
842
END

FIG. 13b

Dell-5545-0048

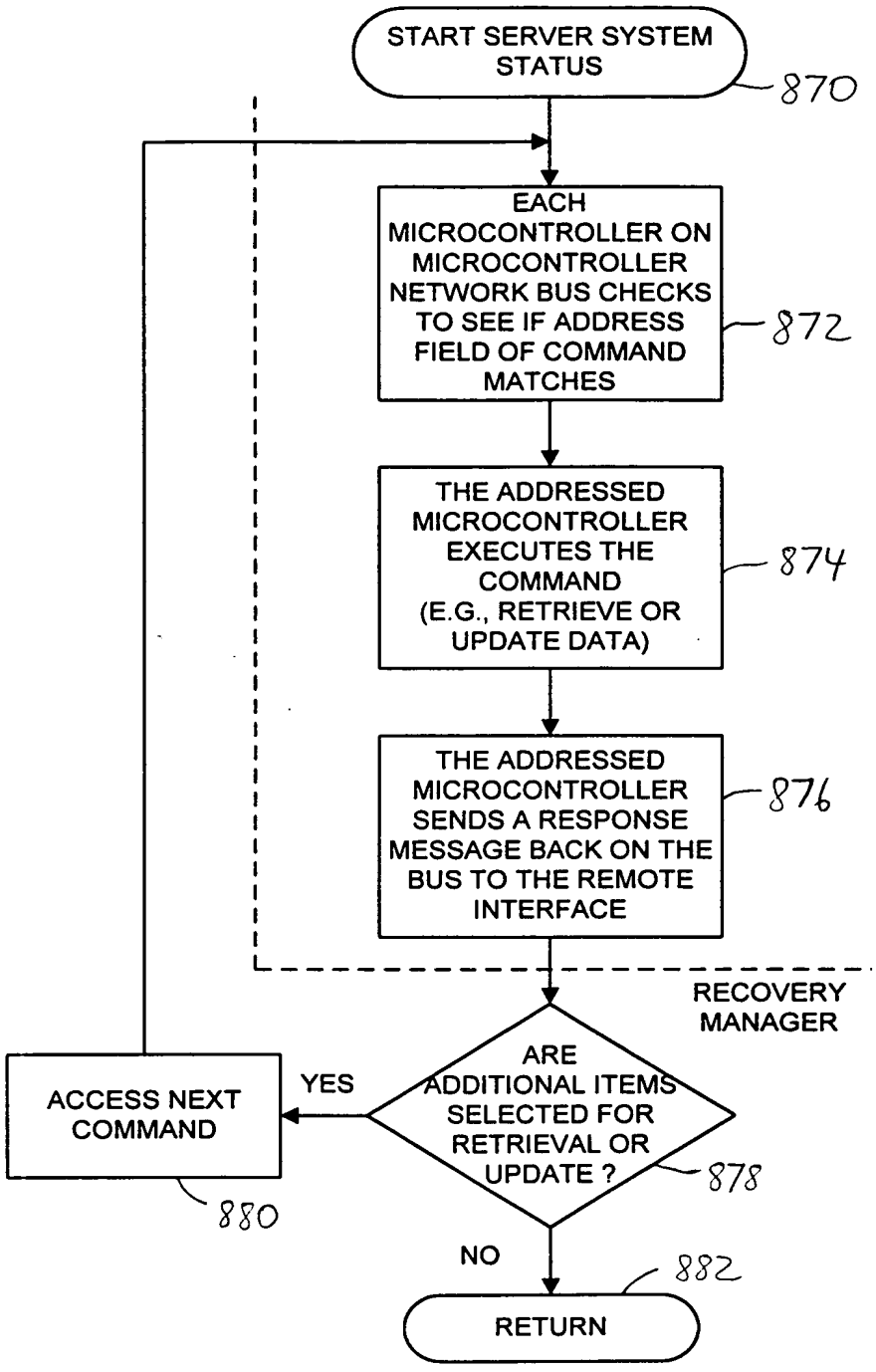

FIG. 14

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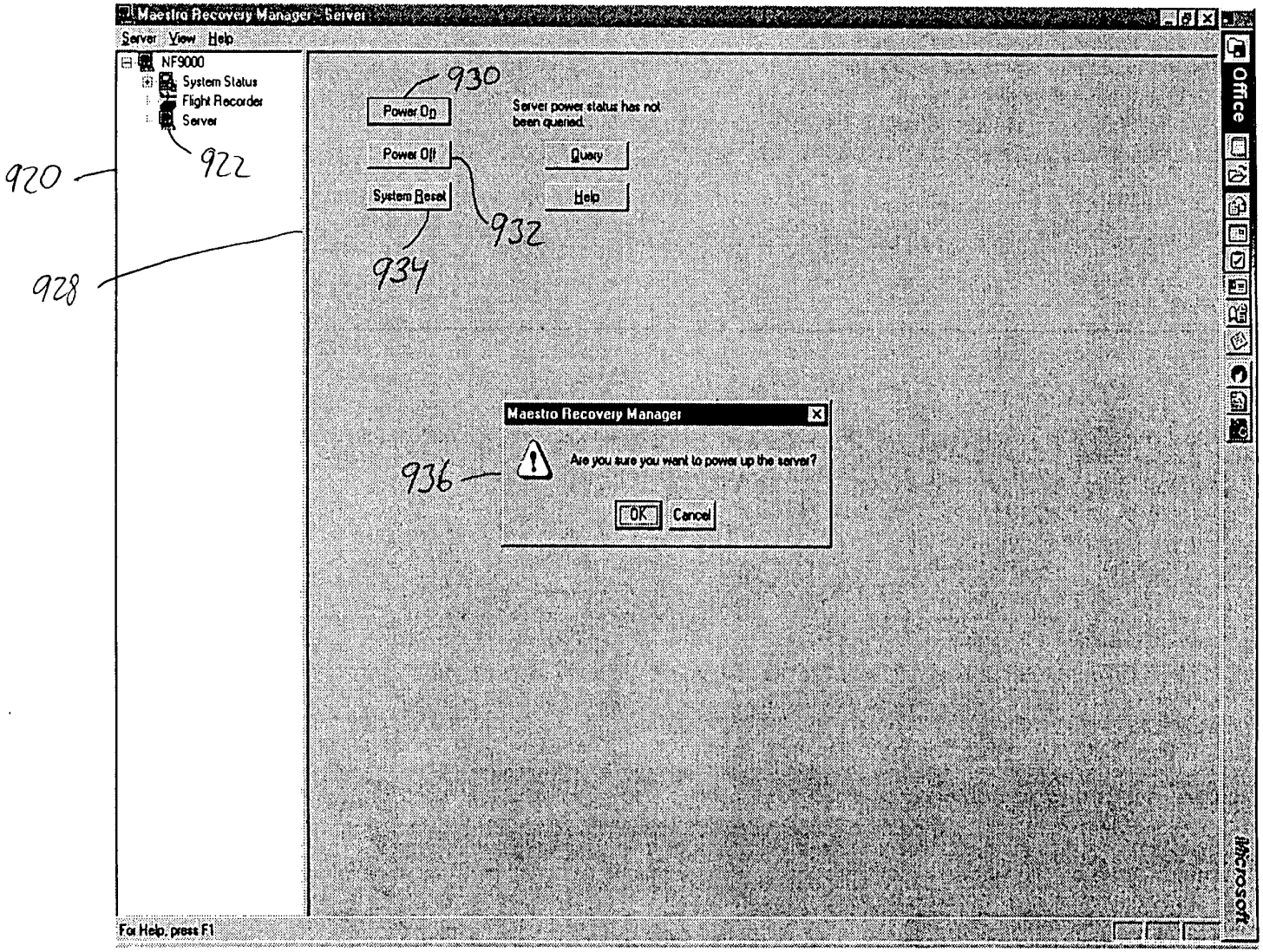

FIG. 15

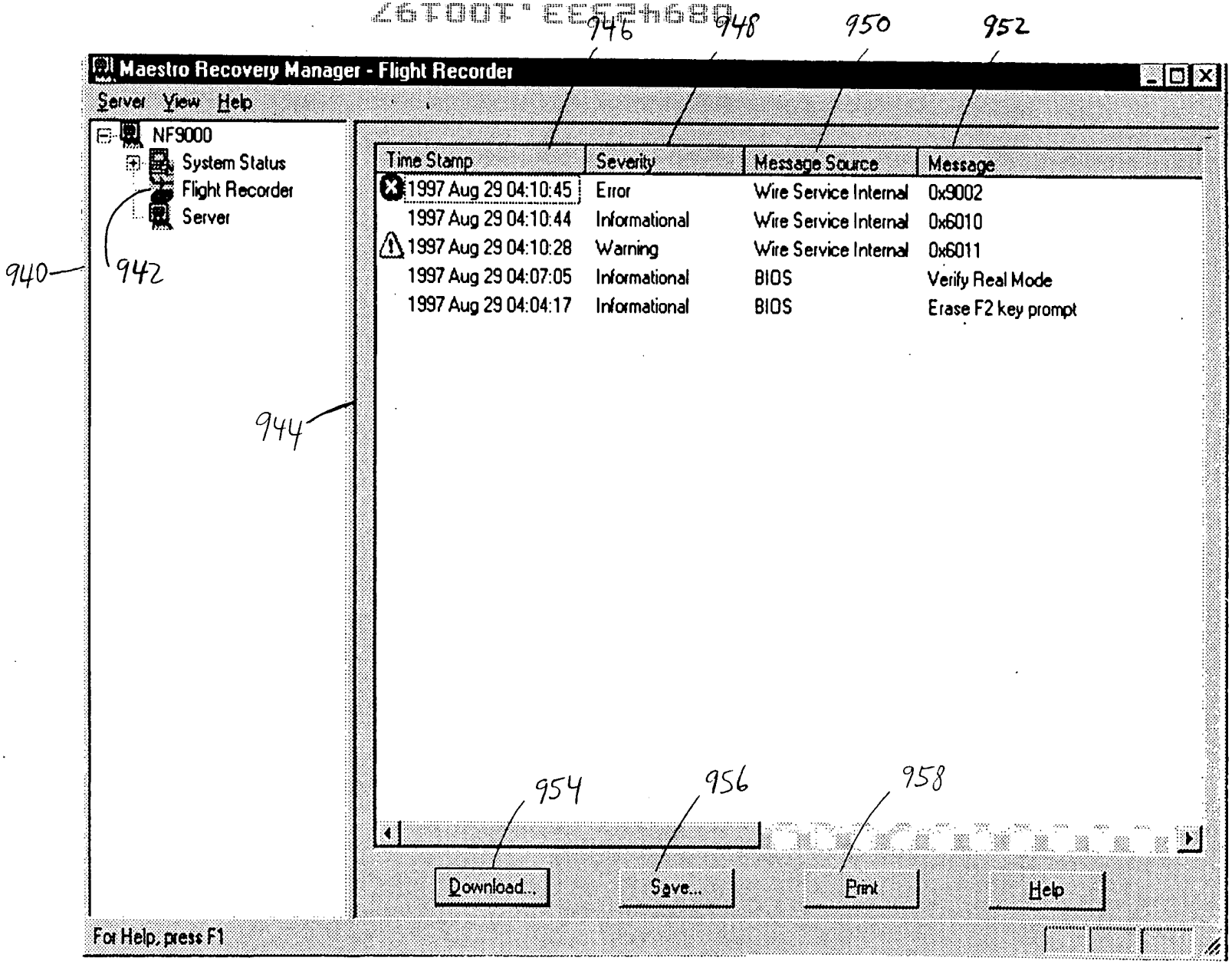
946
948
950
952
Maestro Recovery Manager - Flight Recorder
Server View Help
NF9000
System Status
Flight Recorder
Server
940
942
944
Time Stamp
Severity
Message Source
Message
1997 Aug 29 04:10:45
Error
Wire Service Internal
0x9002
1997 Aug 29 04:10:44
Informational
Wire Service Internal
0x6010
1997 Aug 29 04:10:28
Warning
Wire Service Internal
0x6011
1997 Aug 29 04:07:05
Informational
BIOS
Verify Real Mode
1997 Aug 29 04:04:17
Informational
BIOS
Erase F2 key prompt
954
956
958
Download...
Save...
Print
Help
For Help, press F1

FIG. 16

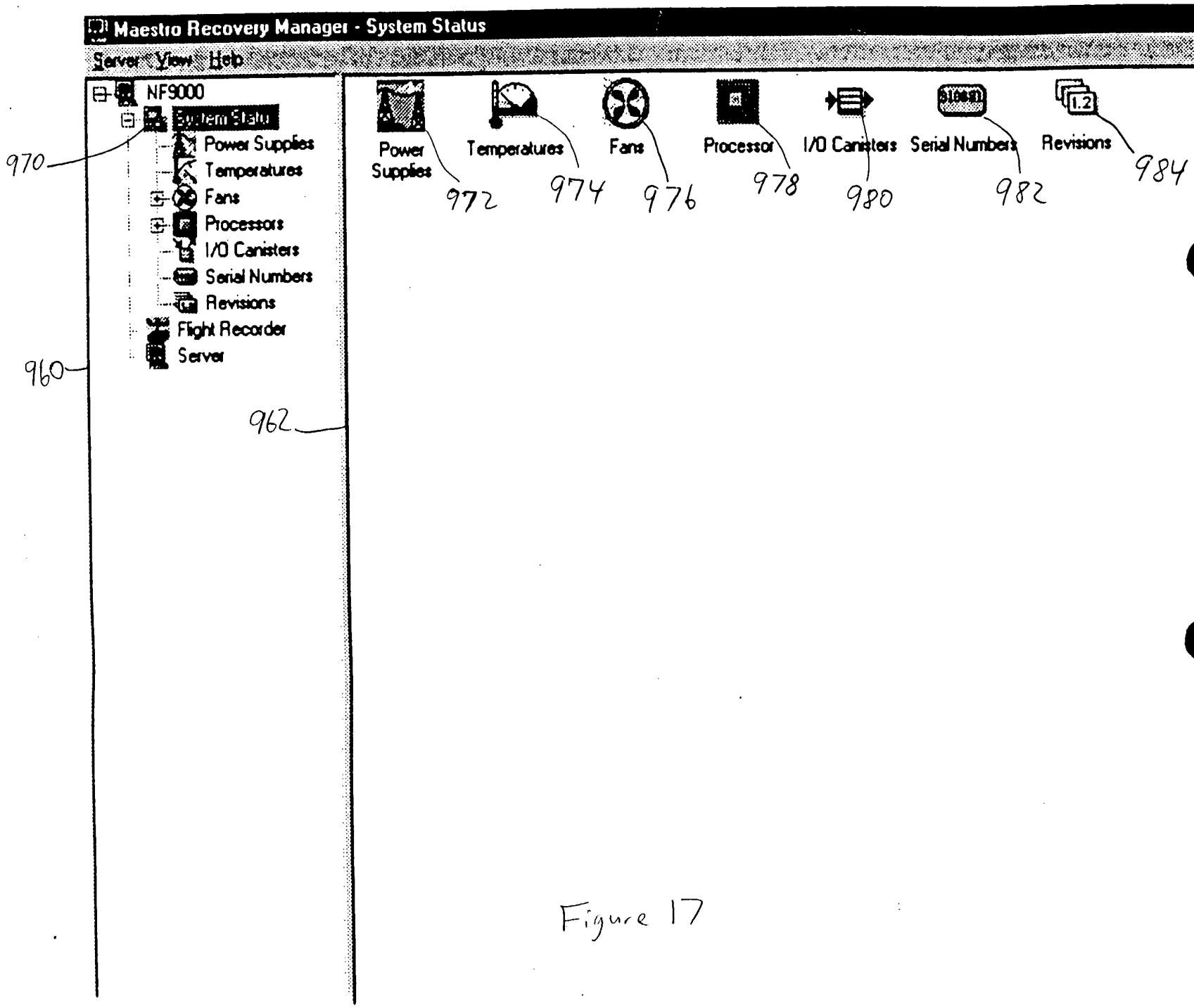
Maestro Recovery Manager - System Status
Server View Help
NF9000
System Status
Power Supplies
Temperatures
Fans
Processors
I/O Canisters
Serial Numbers
Revisions
Flight Recorder
Server
970
960
962
Power Supplies
Temperatures
Fans
Processor
I/O Canisters
Serial Numbers
Revisions
972
974
976
978
980
982
984

Figure 17

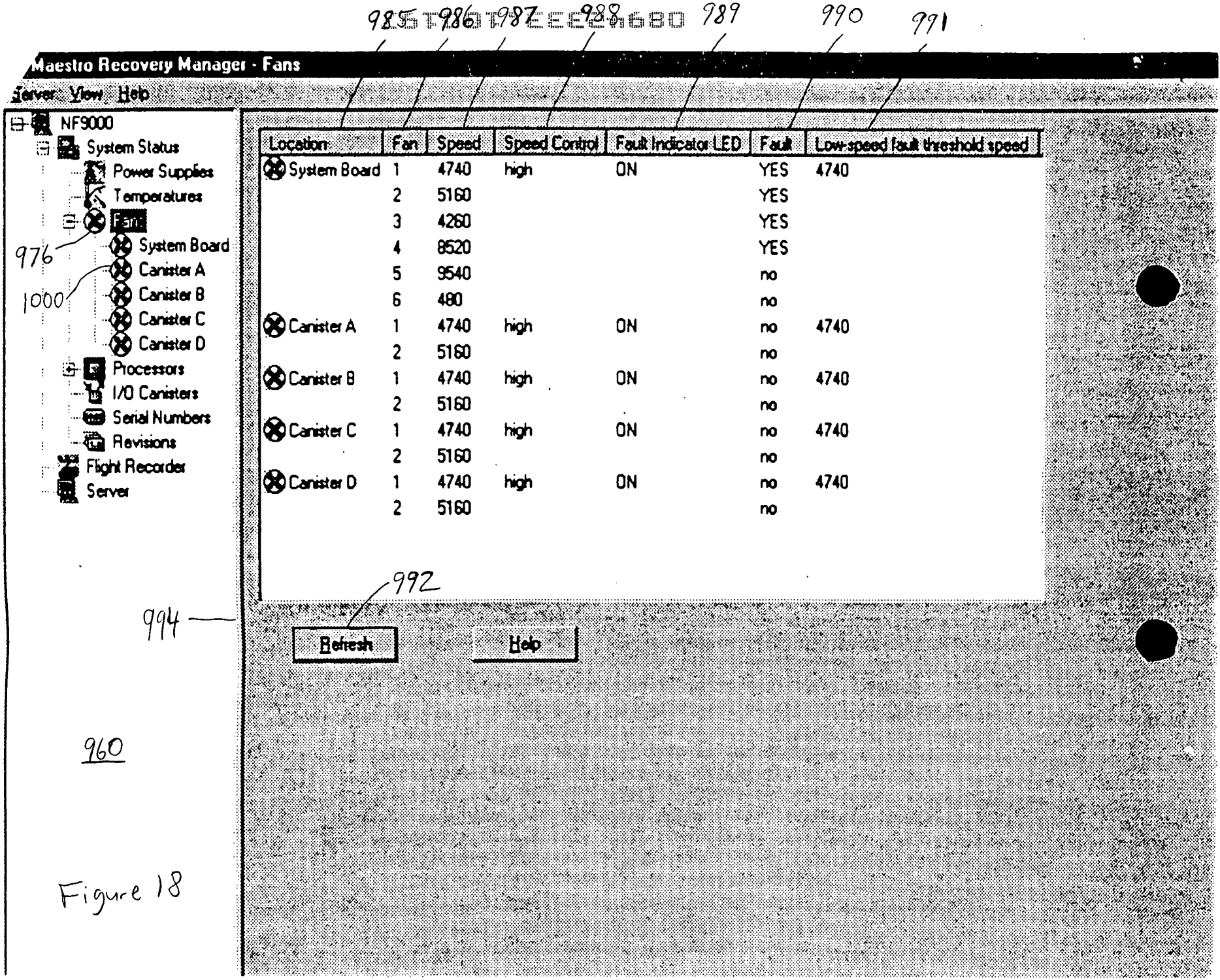
985
986
987
988
989
990
991
Maestro Recovery Manager - Fans
Server View Help
NF9000
System Status
Power Supplies
Temperatures
Fans
System Board
Canister A
Canister B
Canister C
Canister D
Processors
I/O Canisters
Serial Numbers
Revisions
Flight Recorder
Server
976
1000
Location
Fan
Speed
Speed Control
Fault Indicator LED
Fault
Low-speed fault threshold speed
System Board 1 4740 high ON YES 4740
2 5160 YES
3 4260 YES
4 8520 YES
5 9540 no
6 480 no
Canister A 1 4740 high ON no 4740
2 5160 no
Canister B 1 4740 high ON no 4740
2 5160 no
Canister C 1 4740 high ON no 4740
2 5160 no
Canister D 1 4740 high ON no 4740
2 5160 no
992
994
Refresh
Help
960

Figure 18

26700T "EEE2h680

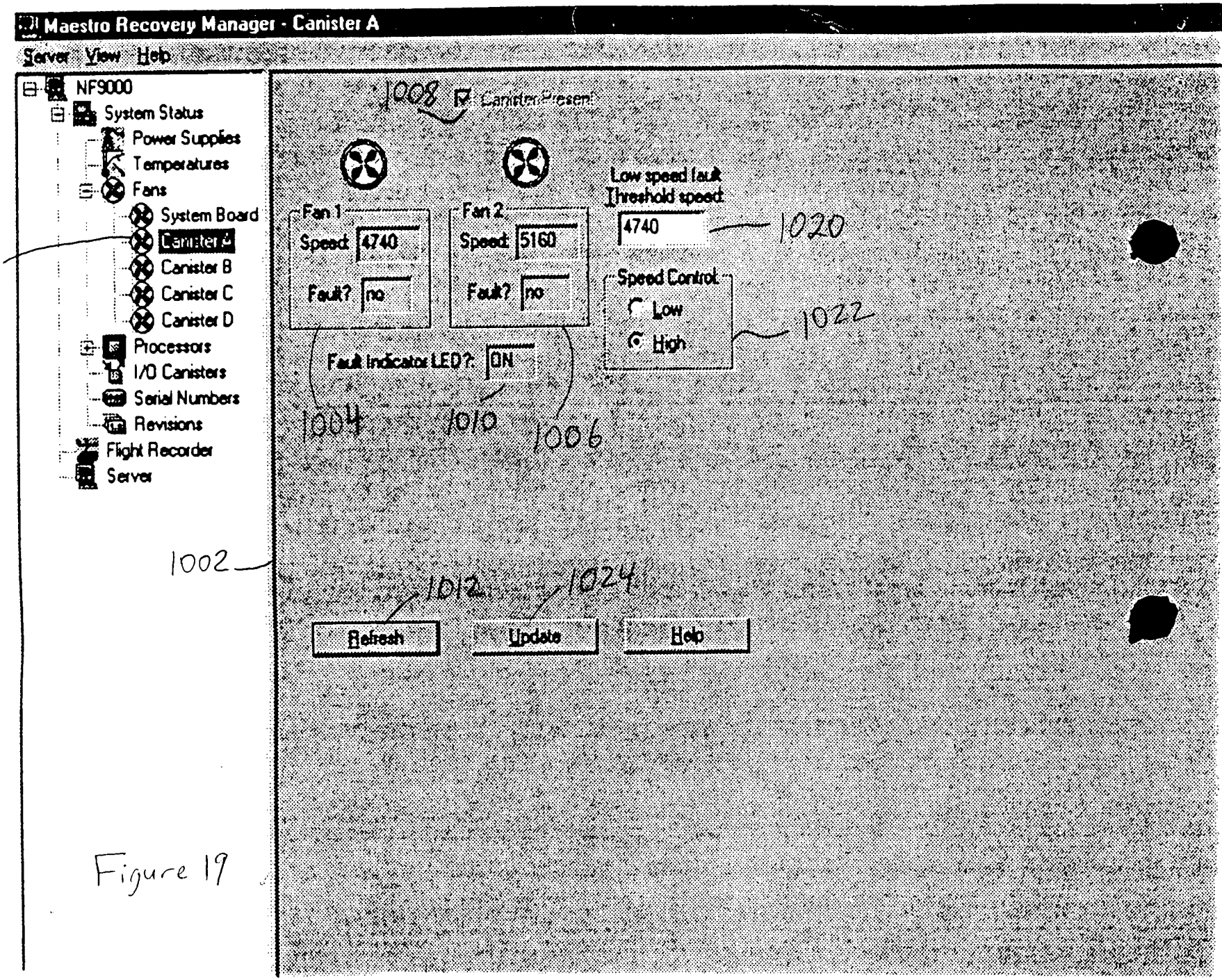

Figure 19